

WA0XX-A


POWER METER SET

1. GENERAL. This procurement requires an RF peak power measuring set.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. MEASUREMENT CAPABILITY. The equipment shall be capable of measuring peak power at the center of a specific pulse in a pulse train, and the pulse width at the 3 dB points of a pulse envelope, within the minimum frequency and power ranges, and with the modulation characteristics specified below.

3.1 Modulation. The equipment shall be capable of measuring signals with RF modulation rates of 25 pps to 10,000 pps, and with pulse widths of 1.0 us to 1 ms.

3.2 Power meter. The equipment shall be provided with an electro-luminescent, LCD, or CRT display to give a visual presentation of the detected pulse waveform. Additionally, the equipment shall automatically display the peak power level of the signal in dBm or Watts. Power level display resolution shall be at least 3  digits.

3.2.1 Power measurement point. The equipment shall automatically measure the peak power level at the center of the detected pulse. Additionally, it shall be possible for the user to manually select any point on the pulse envelope or a pulse train to be the measurement point.

3.2.2 Parametric measurements. The equipment shall be capable of measuring and displaying the following parameters of the displayed signal: period, prf, width, rise time, and fall time. Rise and fall times shall be measured between the proximal and distal points, and width shall be measured between the mesial points of pulse waveforms. Pulse parameters shall be as defined in IEEE Standard 194-1977, "Standard Pulse Terms and Definitions." Parametric measurement accuracy: $\pm 0.1\%$.

3.3 Trigger. The equipment shall have internal and external trigger modes.

3.3.1 Trigger delay range. 0 to 200 ms. Resolution: 0.1 ns. Accuracy: $\pm(0.01\%$ of delay + 1 ns).

3.3.2 External trigger. Level: TTL. Connector type: BNC(f).

3.4 Calibration factor control. The equipment shall automatically read calibration data from the connected sensor. The equipment shall detect when a sensor has been changed while instrument power is on and read the data from the new sensor. Calibration factor selection shall only require the operator to enter the carrier frequency.

3.5 Power sensor.

3.5.1 Frequency range. 50 MHz to 18 GHz.

3.5.2 Peak power range. -20 dBm to +20 dBm.

3.5.3 Overload protection. 200 mW peak.

3.5.4 Standing wave ratio (SWR). 1.2 from 50 MHz to 2.0 GHz, 1.25 from 2.0 to 12.4 GHz, and 1.4 from 12.4 to 18.0 GHz.

3.5.5 Connector. Type N(m).

3.5.6 Interconnecting cable length. 1.2 meters (4 ft).

3.5.7 Calibration factors. Calibration factors shall be contained in EEPROM or PROM in the sensor and automatically download to the meter.

3.6 Accuracy. $\pm 10\%$ of full scale, not including source mismatch.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Maximum power consumption: 250W.

4.2 Weight. 20 kg (44 lb) maximum.

4.3 Digital interface. A digital interface is required in accordance with MIL-T-28800.

4.4 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.